

The invention claimed is:

1. An anode cup for an electrochemical cell, comprising:

an upper external diameter ^A and a lower external diameter; ^B

a ratio of said upper diameter to said lower diameter is greater than or equal to about 0.86;

and

5 a ratio of cup height ^C at the upper diameter to cup height ^D at the lower diameter is not greater than about 2.19.

2. The anode cup of claim 1, said anode cup comprising:

a closed upper end;

an open lower end;

a side wall extending between the upper and lower ends;

5 a first vertical height from said open lower end to a first point, where the substantially vertical side wall section blends into a corner radius thereby joining the side wall with said closed upper end; and

a second vertical height from said open lower end to a second point, where the substantially vertical wall section blends into a radius thereby joining the substantially vertical wall section with

10 the step;

wherein the difference of said first vertical height minus said second vertical height is greater than zero.

3. The anode cup of claim 2, wherein said first vertical height is at least two times said second vertical height.

4. The anode cup of claim 1, wherein a total height of said cup is at least 0.178 inch.

5. An anode cup for an electrochemical cell, comprising a closed upper end, an open lower end and a side wall extending between the upper and lower ends, said side wall comprising a step and a substantially vertical section between the step and the closed end. (Figure 2)

6. The anode cup of claim 5, wherein the ratio of a total height of said cup to a vertical midpoint of said step is greater than three.

7. An anode cup for an electrochemical cell, comprising:

an upper end and a lower open end and side walls extending between the upper and lower ends;

[E] a first internal cup diameter measured at the lower open end, and an external cup diameter

lower ?

5 measured at a point where a cup corner radius blends into the cup side wall; [6]

said first internal cup diameter exceeding said external cup diameter; (6 B.D.)

1 at least one step along said side walls, each such step defined by a first radius and a second radius along the side walls, wherein the first radius is toward the lower open end of the cup and the second radius is toward the upper end of the cup along the side walls;

10 a second internal cup diameter measured at a point where the second radius blends into the cup side wall;

a first vertical height measured from said lower end to the point where cup corner radius blends into said cup side wall; and

15 a second vertical height measured from said lower end to a point where the second radius of said step blends into the cup side wall;

wherein said external cup diameter exceeds the second internal cup diameter, and wherein the difference of said first vertical height minus said second vertical height is greater than zero.

8. The anode cup of claim 7, wherein a total height of said cup is at least two times said second vertical height.

9. The anode cup of claim 8, wherein said first vertical height is at least two times said second vertical height.

10. The anode cup of claim 7, wherein a total height of said cup is at least 0.178 inch.

11. The anode cup of claim 7, wherein the ratio of a total height of said cup to a vertical midpoint of said step is greater than three.

12. An anode cup and gasket assembly for an electrochemical cell, comprising:

an anode cup comprising an upper end, a lower open end, a side wall extending between the upper and lower ends, and a rounded corner where the upper end and side wall meet, said cup having an external cup diameter measured at a point where the cup corner radius blends into the cup side wall, wherein the side wall of said cup has a step formed between two substantially vertical sections; and

a gasket surrounding the open end of said cup, wherein said gasket comprises an interior gasket portion disposed radially inward from the interior surface of said cup side wall, the interior gasket portion defining an inner gasket diameter, and the external cup diameter exceeding the inner gasket diameter.



13. The assembly of claim 12, wherein the interior gasket portion comprises a gasket foot defining said inner gasket diameter.

14. The assembly of claim 13, wherein the interior gasket portion further comprises at least one projection extending radially inward from the gasket foot, said projection defining said inner gasket diameter.

15. The assembly of claim 12, wherein:

the side wall further comprises a step defined by a first radius, toward the lower end, and a second radius, toward the upper end; and

the side wall is substantially vertical between the point where the cup corner radius blends into the cup side wall and the point where the second radius blends into the cup side wall.

16. The assembly of claim 15, wherein said anode cup further comprises a vertical height, measured from said lower end to a point where the cup corner radius blends into the cup side wall, and a second vertical height, measured from said lower end to a point where the second radius blends into the cup side wall, and wherein the difference of the first vertical height minus the second vertical height is greater than zero.

17. The assembly of claim 16, wherein the first vertical height is at least two times the second vertical height.

18. An electrochemical cell comprising:

an anode cup having an upper end, a lower open end, and side wall extending between the upper and lower ends, said anode cup further having at least one step along said side wall, each such step defined by a first radius and a second radius along the side wall, wherein the first radius is toward the lower open end of the anode cup and the second radius is toward the upper end of the anode cup along the side wall;

→ a cathode can having an upper end and a lower closed end and side wall extending between the upper and lower can ends, said can side wall formed into a cathode can closing radius at a shoulder area of the cell; and

10 a gasket disposed between the anode cup and the cathode can;

wherein the ratio of a total cell height, measured from a bottom surface of said lower can end to a top surface of said upper cup end, to a ^{cathode} can height, measured from a bottom surface of said lower can end to a top edge of said can, is greater than 1.35.

19. The cell of claim 18, wherein the ratio of a total cell height to a can height is greater than 1.5.

20. The cell of claim 19, wherein the ratio of a total cell height to a can height is greater than 1.7.

21. The cell of claim 20, wherein the ratio of a total cell height to a can height is greater than 1.9.

22. The cell of claim 18, wherein the cell is a button cell, having a total cell height, measured from a bottom surface of said lower can end to a top surface of said upper cup end, that is not larger than the maximum outer diameter of said can.

23. The cell of claim 22, wherein the button cell is an air depolarized alkaline cell.

24. A button-type electrochemical cell comprising:

an anode cup having an upper end, a lower open end, and side wall extending between the upper and lower ends, said anode cup further having at least one step along said side wall, each such step defined by a first radius and a second radius along the side wall, wherein the first radius is toward the lower open end of the anode cup and the second radius is toward the upper end of the anode cup along the side wall;

a cathode can having an upper end, a lower closed end and a side wall extending between the upper and lower can ends, said can side wall formed into a cathode can closing radius at a shoulder area of the cell; and

a gasket disposed between the anode cup and the cathode can;

wherein a total cell height, measured from a bottom surface of said lower can end to a top surface of said upper cup end, minus a cathode can height, measured from a bottom surface of said lower can end to a top edge of said can, is greater than or equal to about 0.04 inch.

25. The cell of claim 24, wherein the total cell height minus the cathode can height is greater than or equal to about 0.06 inch.

26. The cell of claim 24, wherein the total cell height minus the cathode can height is greater than or equal to about 0.08 inch.

27. The cell of claim 24, wherein the total cell height minus the cathode can height is greater than or equal to 0.10 inch.

28. The cell of claim 24, wherein the ratio of the total cell height to the cathode can height is greater than about 1.35.